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TYPE STUDIES ON *FRULLANIA* SUBGENUS *METEORIOPSIS* (HEPATICAE). II. ON *F. APOLLINARII* AND *F. PARANENSIS*

Estudios en ejemplares tipo del género *Frullania* subgénero *Meteoriopsis* (Hepaticae). II. Sobre *F. apollinarii* y *F. paranensis*

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ABSTRACT

As a result of a redefinition of subgenus *Meteoriopsis* and the study of type material, *Frullania apollinarii* Steph. is transferred from this subgenus to subgenus *Thyopsiella* and *F. paranensis* to subgenus *Chonanthelia*.

Key words. Hepaticae, *Frullania* subgenus *Thyopsiella*, *Frullania* subgenus *Meteoriopsis*.

RESUMEN

Con base en los caracteres que definen al subgénero *Meteoriopsis* y el estudio de los ejemplares tipo se concluye que *Frullania apollinarii* Steph. debe ser transferida al subgénero *Thyopsiella* y *F. paranensis* al subgénero *Chonanthelia*.

Palabras clave. Hepaticae, *Frullania* subgénero *Thyopsiella*, *Frullania* subgénero *Meteoriopsis*.

INTRODUCTION

Stephani (1911) assigned a number of species of *Frullania* to subgen. *Meteoriopsis* based solely on the possession of a pendant habit; later, Uribe & Gradstein (2003) pointed out that the diagnostic characters of subgen. *Meteoriopsis* are the presence of the long-cylindrical lobule and auriculated leaf-lobe base, with auricles both antical and postical. Accordingly, several species previously assigned to subgen. *Meteoriopsis* were transferred to subgen. *Thyopsiella* by Uribe & Gradstein (2003). In this paper, *F. apollinari* is transferred to subgen. *Thyopsiella* and *F. paranensis* to subgen. *Chonanthelia*.

Frullania apollinarii Steph.**,** Spec. Hepat. 4: 602. 1911. Type. Colombia. Cordillera de Bogotá, 2700 m, 1905, *Apollinaire s. n.* (holotype, G 20609) Fig. 1

Frullania villosa Steph., Spec. Hepat. 4: 608. 1911. Type. Ecuador, 1896, *Mathan s.n.* (holotype, G 20627), **syn. nov.**

Plants of medium to large size, up to 15 cm long and 1.8 mm wide including leaves, dark reddish to black, irregularly pinnate. **Branches** frequent, *Frullania*-type, to 1 cm long. **Stems** to 220 µm wide in cross section. **Leaf-lobes** imbricate, convoluted around the stem when dry, spreading when wet, ovate, rounded, asymmetrical, concave, 950-1475 x 1000-1525 µm, apex rounded, blunt, margin entire, dorsal base auriculate, arching over the stem, ventral base not auriculate. **Leaf-lobe cells**: apical cells 12-17 x 10-12 mm, median cells 20-27 x 10-15 mm, basal cells 30-40 x 20-25 mm, walls thick, sinuous, with trigones inconspicuous and intermediate thickenings. **Lobules** cylindrical to long cylindrical to clavate, contiguous and parallel to the stem, 320-420 x 120-170 mm. **Stylus** filiform, three cells long, with a terminal slime papilla. **Underleaves** ovate, oblong to obovate, contiguous, 1025-1075 x 720-800 mm, up to 4x wider than the stem, margin entire, undulate, recurved near the apex, bifid to 1/5 of their length, segments acute or blunt, base auriculate, auricles rather long, undulate, insertion line straight. **Branch appendages**: first branch underleaf divided to the base into a triangular, entire ventral segment and a saccate dorsal segment. **Androecia** lateral on short branches, capitate, 752 mm long, bracts in 4-5 series. **Gynoecia** terminal on the stem, the bracts and bracteoles in three series, bracts bifid, and margin toothed. **Perianth** 1/3 exserted, oblong-elliptic, ca. 2000 µm long, smooth, terete, with an apical short beak.

Distribution. Colombia and Ecuador. Known only from the type localities.

Frullania apollinarii was erroneously included in subgenus *Meteoriopsis*, section *Acutifolia*. The study of the type specimen, however, revealed that this species has a rounded not acute leaf-lobe apex, (fig. 1C). This species is a genuine member of subgenus *Thyopsiella*, because of the presence of auricle only antical in base leaf-lobe.

Frullania apollinarii can be recognized by its obovate, rounded, semicordate stem leaf-lobes and auriculate underleaves, with long and undulate auricles. This species is related to *F. paradoxa* Lehm. & Lindenb. but in the latter the underleaves lack auricles.

Frullania paranensis Steph., Spec. Hepat. 4: 607. 1911. Type: Brazil, Paraná, "Serrinha", 1904, *Dusén 4395* (holotype, G 20627, isotype, NY)
Fig. 2

Plants of medium to large size, 6-15 cm long, 1.5 mm wide including leaves, yellow, reddish-yellow to green-yellowish, projecting growth (not pendent). **Stems** 175-190 µm wide in cross section. **Branches** infrequent, *Frullania*-type, very large, to 10 cm long. **Leaf-lobes** distant to subimbricate, convoluted around the stem when dry, obliquely spreading when wet, ovate, symmetric, plane, 900-1350 x 1350-1600 µm, apex rounded, margin entire, base auriculate, cordate. **Leaf cells**: apical cells 7-10 x 7-10 mm, median cells 12-17 x 30-35 mm, and basal cells 22-25 x 27-35 mm; cells with walls thick, sinuous, with cordate trigones and without intermediate thickenings, basal cells with bulging trigones. **Lobules** explanate or laminate, 450-525 mm, contiguous to the stem. **Stylus** not seen. **Underleaves** ovate to subquadrate, distant, to 475-575 µm x 575-700 µm. up to 3x wider than the stem, margin toothed, with one or two lateral teeth, bifid to 1/2 of their length, segments blunt to acute, base without auricles, insertion line curved. **Branch appendages**: first branch underleaf divided to the base into a triangular, entire ventral segment and an explanate or canaliculate dorsal segment; first branch leaf transformed into two canaliculate segments. **Androecia** not seen. **Gynoecia** on short lateral branches, bracts and bracteoles in two or three series, acute, entire. **Perianth** oblong, 5-8-keeled, smooth, narrowed to a short beak, 1 mm long, 850 µm wide.

Distribution. Known only from the type locality.

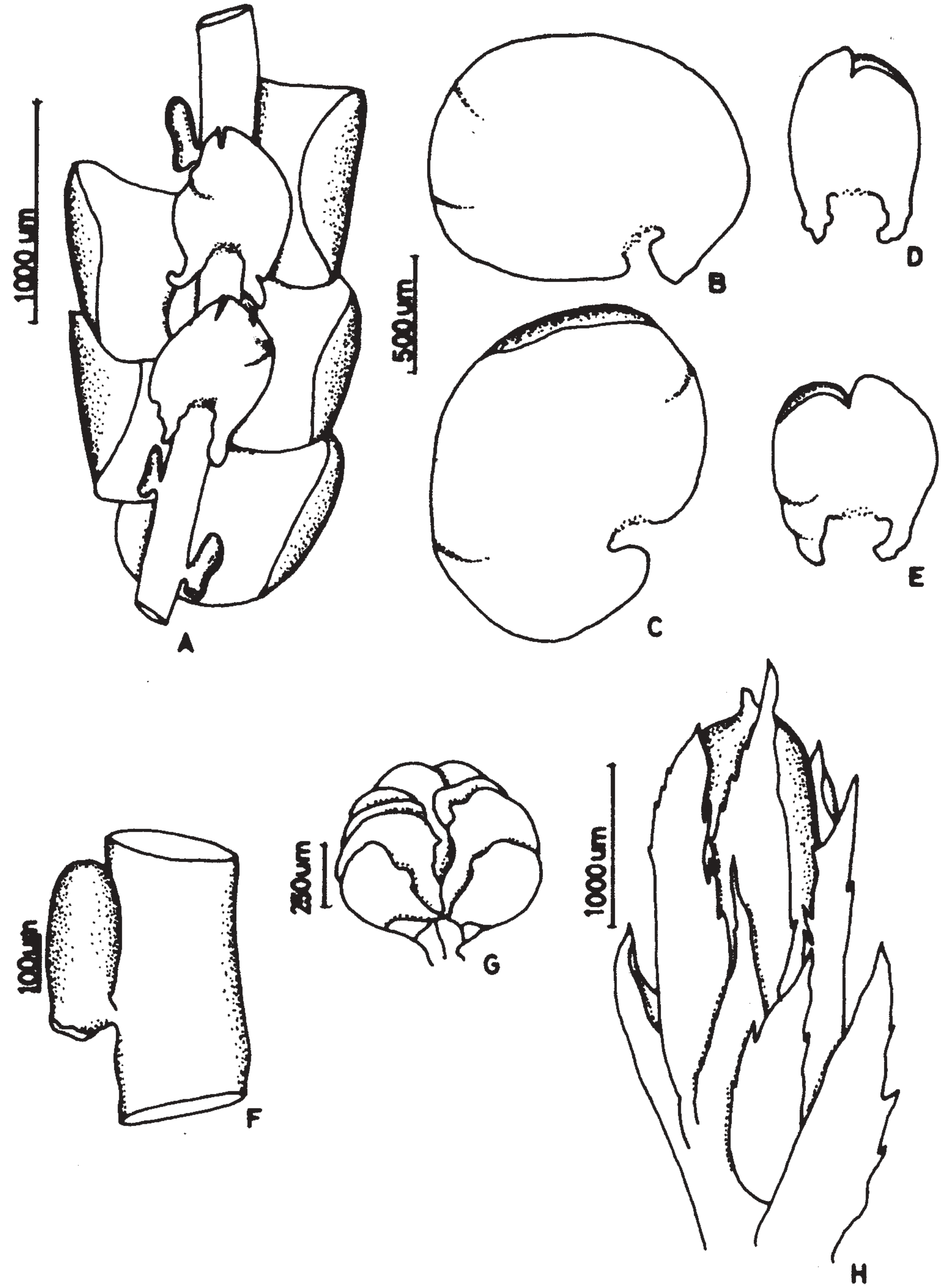
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Fig. 1. *Frullania apollinari* Steph. A. Part of shoot, ventral view; B-C. Stem leaves; D-E. Underleaves; F. Ventral lobule; G. Androecium; H. Gynoecium with perianth. (A-G from type of *F. villosa* Steph.; H from type of *F. apollinari* Steph.)

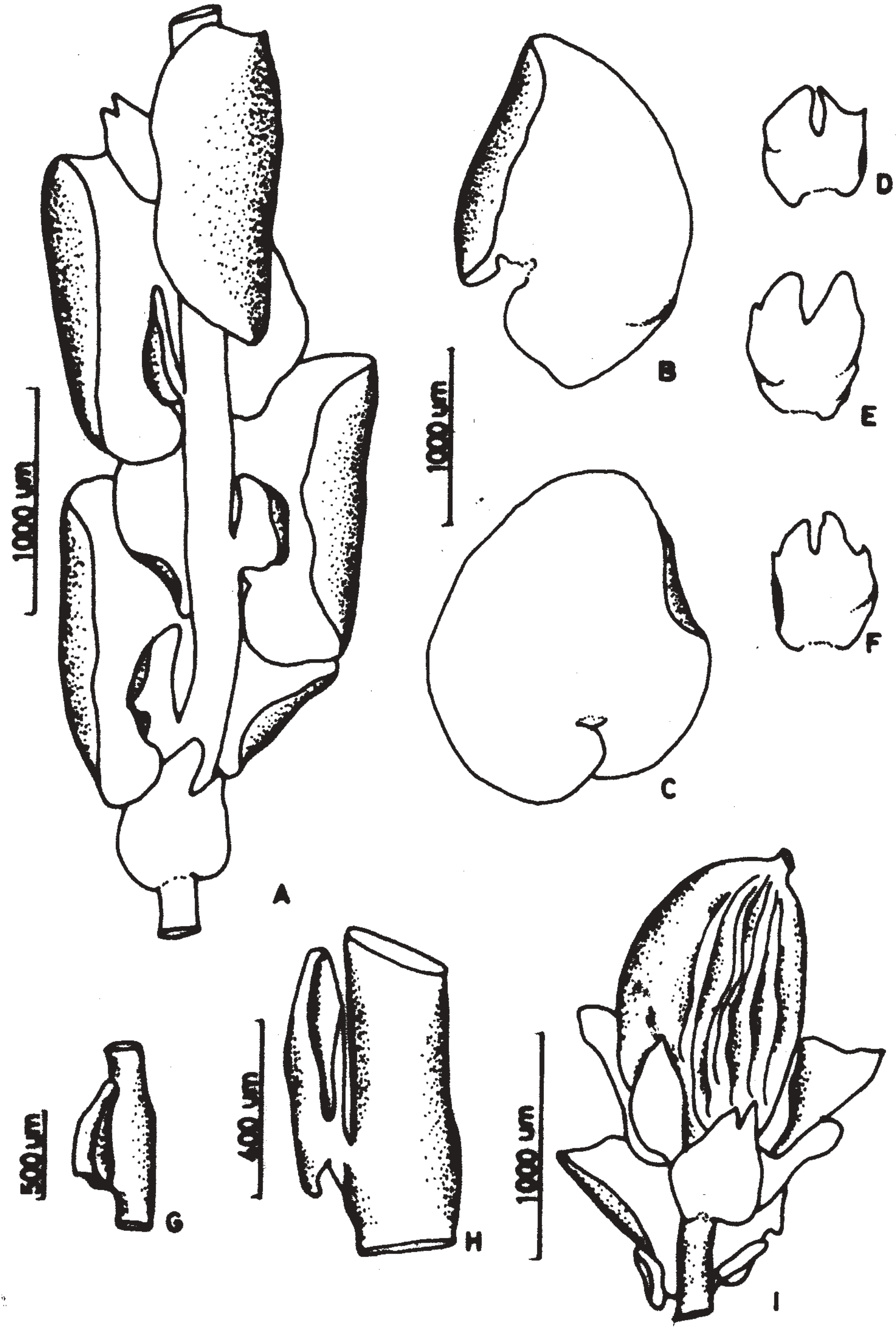
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Fig. 2. *Frullania paranensis* Steph. A. Part of shoot, ventral view; B-C. Stem leaves; D-E and F. Underleaves; G-H. Ventral lobules, canaliculate; I. Perianth. (All from the type of *F. paranensis* Steph.)

Frullania paranesis is a poorly known species; the absence of saccate lobules, an important character for placement in a particular subgenus, renders identification difficult; I consider, however, this species a genuine member of subgenus *Chonanthelia*, based on the keeled perianth and the presence of canaliculate lobules. *F. paranensis* is probably conspecific with *F. lindmannii* Steph. both species has been reported from southern Brazil, Paraná and Rio Grande do Sul (Gradstein & Pinheiro da Costa, 2003).

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